TOWN OF NORTH HAMPTON

NATURAL FEATURES INVENTORY

PREPARED BY THE

NORTH HAMPTON CONSERVATION COMMISSION

AND THE

ROCKINGHAM PLANNING COMMISSION

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INTRODUCTION

The New Hampshire Coastal Zone program was established to protect one of New Hampshire's most treasured natural resources, its coastline. Each year state funding is set aside specifically for coastal protection and natural resource studies. In 1993, in response to funding notice issued by the Rockingham Planning Commission (RPC), the Conservation Commission of the Town of North Hampton, New Hampshire contracted for services with the Rockingham Planning Commission to complete a natural resources inventory for the town.

The scope of the services was twofold. First, to identify and map the resources using Geographic Information Systems (GIS) mapping and, secondly, to prepare a text to compliment the maps. The Conservation Commission and the RPC staff determined that nine maps needed to be prepared. These included: groundwater resources, surface water resources, farmlands and forest, protected lands and recreation, surficial and bedrock geology, floodplains, historic/archeological sites, wetlands and wildlife maps. The work, completed by the RPC, with two wildlife studies completed in 1981 and 1994 by students at the University of New Hampshire, was funded equally by the Town of North Hampton, New Hampshire and the New Hampshire Coastal Program.

MAP 1. BEDROCK GEOLOGY MAP

North Hampton consists of four general types of bedrock geology. They include Rye Gneiss, which consist of metamorphic light colored to gray schists and gneisses, quartzites, and amphibolites (ZOr (z)) and quartz-feldspar granitic gneiss and blastomylonitic migmatite (ZOrb); Kittery Formations, which consist of well-bedded and grade-bedded purple and green phyllite and tan siltstone (OZK); Ordovician Plutons, which consist of igneous proxene and pyroxene, composed of hornblende diorite and gabbro (Oe9); and Devonian Rocks of the Plutonic Suite, which are plutonic and consist of two mica granites of northern and southeastern New Hampshire (Dlm).

MAP 2. FARMLAND AND FOREST SOILS MAP

North Hampton has five parent material categories of soil types. These include: till, outwash, alluvial, marine and organic matter. Till has been transported and deposited by glacial ice, has an absence of layering and generally consists of well-drained sands and gravels. Outwash soils consist of sandy material deposited by glacial stream melt water, which is generally better sorted than till and is well drained. Alluvial soils consist of fine materials deposited along active stream beds. Marine soils consist of ocean deposits of silt and clay. Organic matter consists of material originating from decomposition of organic matter and is generally found in wet areas.

The marine soils, which contain silts, sands and some clays, with organic matter are considered prime for farming. These soils must be combined with a maximum of an 8% slope and adequate moisture provide to provide ideal farming conditions. Since the land in North Hampton is relatively flat - ranging from a three percent (3%) to eight percent (8%) slope - the terrain lends itself to field crops, such as corn, and hay, truck crops such as carrots, beans, peas, squash, etc. and fruits, such as strawberries, raspberries and apples. Forests tend to exist in areas where there are more rocky, yet organic soils. Depending on the tree species, trees, such as white cedar and red maple, can thrive in swamps or in upland areas with more rocky, organic soils.

MAP 3. SURFACE WATERS AND WATERSHEDS

North Hampton has two regional watersheds: the drainage areas for Great Bay and the New Hampshire Coast. The Great Bay watershed consists of the Great Bay estuarine system, which covers approximately 17 square miles and is one of the largest estuaries along the east coast of the United States. This system is formed by the convergance of seven rivers: the Salmon Falls, Cocheco, Bellamy, Oyster, Lamprey, Squamscott and Winnicut with a total watershed of approximately 930 square miles. The northwestern area of North Hampton, consisting of approximately 5.5 square miles, is located within the Great Bay Watershed. Several streams, the Barton, Pine Hill and Cornelius brooks, Knowles Pond and a river, the Winnicut, drain in a northerly direction into Great Bay.

The coastal watershed receiving water bodies are the Atlantic Ocean and the Piscataqua River. The area of the entire coastal watershed is approximately 78 square miles, with North Hampton's portion of the coastal watershed being about 8.4 square miles. The Coastal

watershed is divided into four sub-watersheds within North Hampton: Little River, Philbrick's Pond, Berry's Brook and Bailey Brook. The Little River sub-watershed consists of its tributaries, North Brook, Oliver Brook, Garland Brook, three unnamed streams, and a man-made pond, Mill Pond. The Philbrick's Pond sub-watershed is supplied by Chapel Brook and several unnamed streams and Philbrick's Pond, which is tidal. Berry's Brook sub-watershed is located on the Rye town line, with none of the brook or its associated water bodies located in North Hampton. Bailey's Brook sub-watershed is located primarily in Rye and is less than .2 square miles. All four sub-watersheds flow into the Coastal watershed.

North Hampton's streams are being changed to some degree by beaver activity - in particular the Winnicut River near Lovering Road. This wildlife activity has resulted in streams and rivers that are predominantly small, relatively slow-moving, sediment- carrying and meandering, with a greater potential for pollution.

The interchange between North Hampton's two saltwater marshes and three extensive freshwater marshes has resulted in unique and diverse natural environments. North Hampton is fortunate to contain such rare and unique ecosystems.

MAP 4. GROUND WATER RESOURCES MAP

The Hampton Water Works operates five wells in aquifers in North Hampton. Three are located south of Winnicut Road in the northwest corner of town, one is east of Mill Road, just north of the North Hampton - Hampton town line and one is located north of Exeter Road, just east of Interstate 95. Deep fracture patterns for future sources of water are being studied by the Hampton Water Works.

MAP 5. WETLANDS MAP

Wetlands account for approximately forty-two per cent (42%) of the land area in the Town of North Hampton. "Wetlands" are defined as poorly and very poorly drained soils, in accordance with the SCS County Soil Survey Map prepared by the USDA Soil Conservation Service in May, 1980 and a wetlands delineation completed by Normendeau Associates in June, 1986. They consist of salt water wetlands, such as the Little River, and fresh water wetlands, such as the Winnecut River. The Little River wetland is divided into two sections by LaFayette, Atlantic and Ocean Boulevard. The Winnecut River wetland is divided into three sections - divided by Winnecut, Lovering, Walnut and Exeter roads.

In addition to these two major wetlands systems, there are a number of isolated wetlands, which are located throughout North Hampton.

Wetlands serve multiple purposes. They serve as filters for surface water permeating into aquifers, provide nesting and spawning grounds for wildlife, support vegetation which feeds area wildlife and serves as rain water encatchment areas in times of flooding.

MAP 6. FLOOD HAZARD ZONES MAP

In general flood zones surround major water courses and are subject to seasonal and/or tidal flooding. The Federal Emergency Management Agency (FEMA) has designated on "Flood Insurance Rate Maps" flood hazard boundaries within the Town of North Hampton. The designation of the 100-year flood zone is a common designation in some of the low-lying marsh and coastal lowlands. The coastal flood hazard zones generally flood the salt water marshes during coastal storms and extreme high tides. The fresh water flood hazard zone is located along the Winnicut River and consists of three large freshwater marshes which serve as storm water detention areas during times of flooding.

MAP 7. HISTORIC SITES/STRUCTURES MAP

North Hampton has several areas of rich historical significance. One large area extends from the railroad tracks (the location of the original town center) east to the ocean on both sides of Atlantic Avenue. In this area there are eleven buildings dating from 1760 to 1799, twenty-seven buildings from 1800 to 1850 and seventeen buildings from 1860 to 1900. The buildings, predominantly residential dwellings, are all fairly close together and run along both sides of the street to the marshland.

The second area is centered around the intersection of Atlantic Avenue, Post Road and Hobbs Road. This section contains two 1770's buildings, six 1820's to 1850's buildings and two 1890's buildings.

Also, of particular note, are the following buildings:

Christian Church - built in 1838 on land of Preacher John Lamprey
Union Chapel - the funds donated by the Union Chapel Fund Society, which was organized by members of the Little Boars Head summer colony. The land was donated by Mrs. Philbrick.

Fish Houses - which were used for supplies and storage by local fishermen.

Mill Dam - built in 1693 and the site of a grist mill and saw mill

Town Hall - built in 1844 and has a rich history of uses

United Church of Christ - built over 250 years ago

In addition to these sites there are a number of mill dams, family cemetaries, and other features, such as the electric railroad and rural, historic landscapes which have contributed to North Hampton's rich history.

MAP 8. PROTECTED LANDS MAP

Within North Hampton there are a number of parcels of land that are valuable undeveloped properties. The Conservation Commission has actively worked to determine which parcels warrant conservation and protection and have contacted key landowners to determine their interest in land protection. In 1989 the Conservation Commission was able to protect three major parcels - they were able to gain title to two pieces of land, totalling 62 acres of land, along the Winnicut River and gain a conservation easement from the Dalton family on a 28 acre parcel of land adjacent to the 62 acres.

The Conservation Commission has and continues to promote open space preservation and develop a trail system within the community. In addition the Commission continues to work actively with other land use boards to take an active approach in land conservation and protection.

MAP 9. WILDLIFE HABITAT MAP

North Hampton's rich land resources attract diverse populations of amphibians, reptiles, birds, and mammals. In particular, the Little and Winnicut Rivers and their tributaries serve as feeding, breeding and nesting areas to a wide range of wildlife. There are two known deer "yards" adjacent to these two rivers, in addition to the fur-bearing animals such as muskrat, mink and beaver, that make their home in these river areas.

The saltwater marshes attract the endangered and threatened osprey, green herons and great blue heron, as well as other shoreland wildlife.

List of Potential Wildlife Species Found in North Hampton

Amphibians and Reptiles:

Jefferson Salamander	Ambystoma jeffersonianum
Blue-spotted Salamander	Ambystoma laterale
Spotted Salamander	Ambystoma maculatum
Four-toed Salamander	Hemidactylium scutatum
Eastern American Toad	Bufo a. americanus
Northern Spring Peeper	Hyla c. crucifer
Gray Treefrog	Hyla versicolor
Green Frog	Rana clamitans melanota
Wood Frog	Rana sylvatica
Northern Leopard Frog	Rana Pipiens
Common Snapping Turtle	Chelydra s. serpentian
Spotted Turtle	Clemmys guttata
Eastern Painted Turtle	Chrysemys p. picta
Northern Water Snake	Nerodia s. sipedon
Northern Brown Snake	Storeria d. dekayi
Eastern Ribbon Snake	Thamnophis s. sauritus
Northern Black Racer	Coluber c. constrictor

Birds:

Common Loon	Gavia immer
Pied-billed Grebe*	Podilymbus podiceps
American Bittern	Botaurus lentiginosus
Least Bittern	Ixobyrchus exilis
Great Blue Heron*	Ardea herodias
Green-backed Heron*	Butorides striatus
Black-crowned Night Heron	Nycticorax nycticorax
Yellow-crowned Night Heron*	Nycticorax violaceus
Mute Swan*	Cygnus olor
Canada Goose*	Branta canadensis
Wood Duck*	Aix sponsa
Green-winged Teal*	Anas crecca
American Black Duck*	Anas rubripes
Mallard*	Anas platyrynchos
Northern Pintail	Anas acuta
Blue-winged Teal	Anas discors
Northern Shoveler	Anas clypeata
American Wigeon	Anas americana
Osprey*	Pandion haliaetus
Northern Harrier*	Circus cyaneus
Rough-legged Hawk	Buteo lagopus
Red-tailed Hawk*	
Peregrine Falcon	Falco peregrinus
King Rail	Rallus elegans

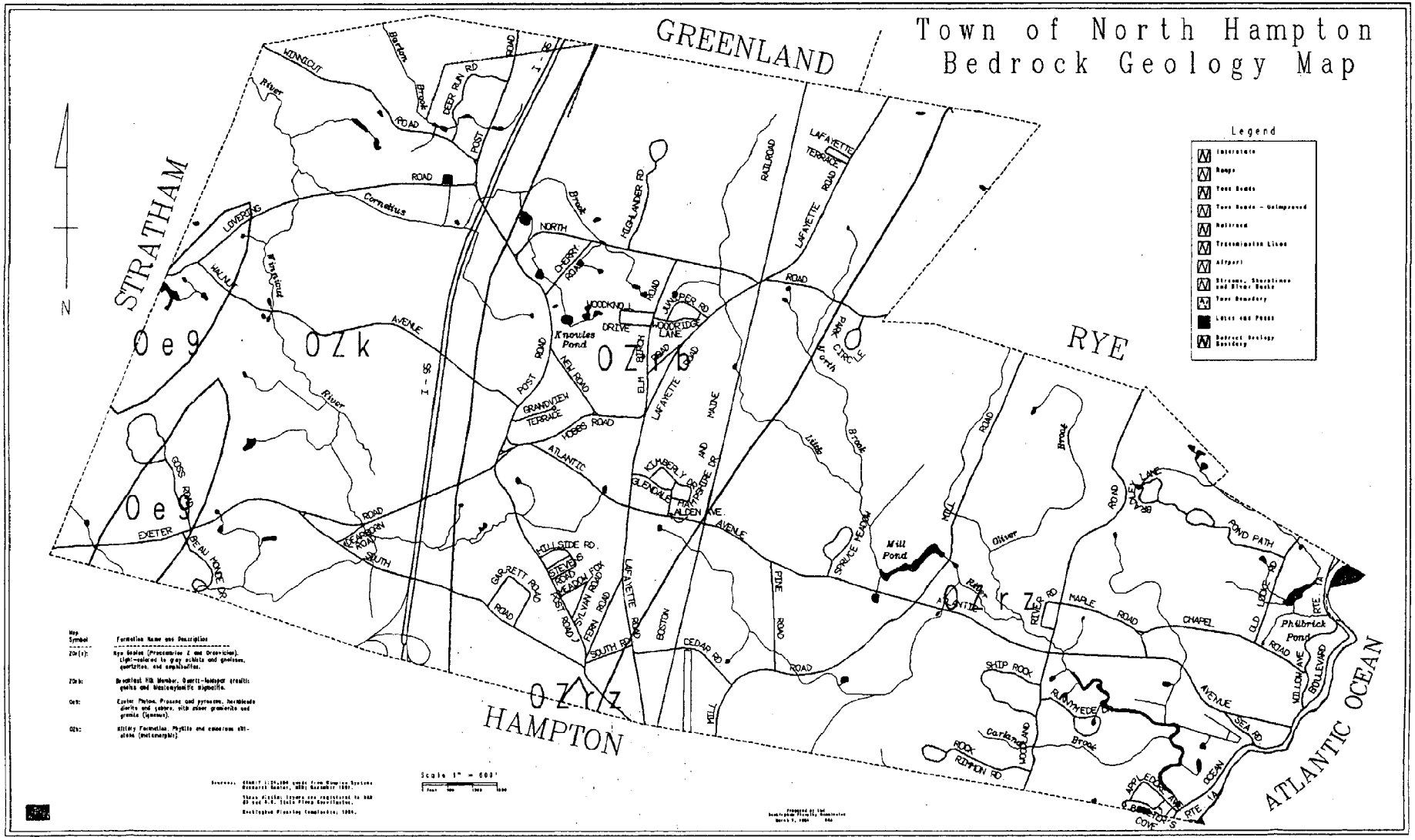
Virginia Rail*	Rallus limicola
Sora*	Porzana carolina
Common Moorhen	Gallinula chloropus
American Coot	Fulica americana
Black Tern*	Chlindonias niger
Eastern Screech Owl	Otus asio
Short-eared Owl	Asio flammeus
Tree Swallow*	Tachycineta bicolor
Barn Swallow*	Tachycineta
Belted King Fisher*	Megaceryle Alcyon
Marsh Wren*	Cistothorus palustris
Sharp-tailed Sparrow*	Passerculus sandiwichensis
Red-winged Blackbird*	Agelaius phoneniceus
American Goldfinch*	Carduelis tristis
Wild Turkey*	
Cardinals*	
House Finches*	
Mourning Doves*	
Cat Birds*	
White-throated Sparrows*	
White-crowned Sparrows*	
Chipping Sparrows*	
Fox Sparrows*	
House Sparrows*	
Song Sparrows*	
Tree Sparrows*	
Mocking Birds*	
Cuckoo*	
Blue Jay*	

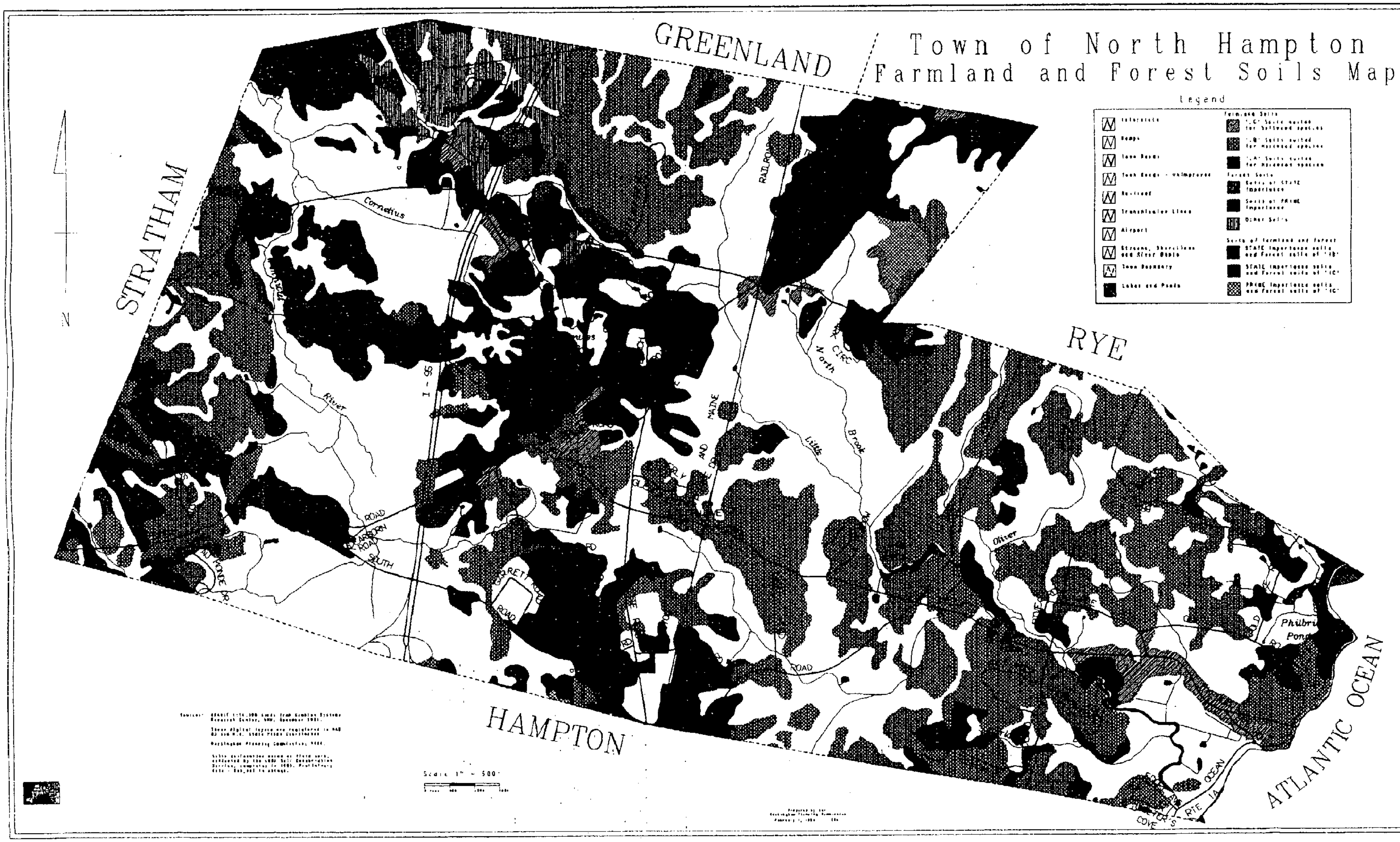
<u>Mammals:</u>

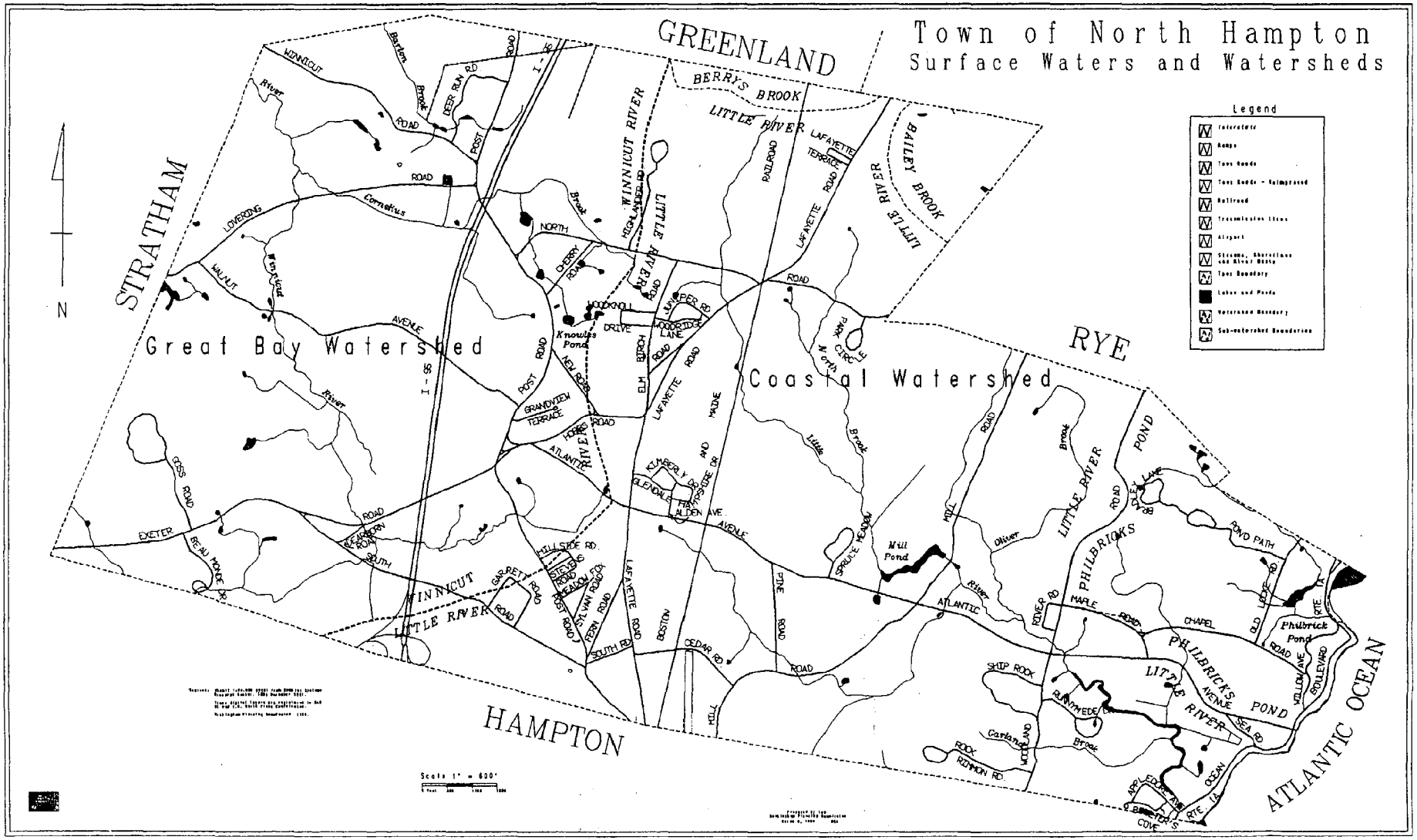
Virginia Opossum*	Didelphis virginiana
Masked Shrew	Sorex cinereus
Water Shrew	Sorex palustris
Northern short-tailed Shrew	Blarina brevcauda
Star-nosed Mole	Condylura cristata
Little Brown Myotis	Myotis lucifugus
Keen's Myotis	Myotis keenii
Silver-haired Bat	Lasionycteris noctivagans
Eastern Pipistrelle	Pipistrellus subflavus
Big Brown Bat	Eptesicus fuscus
Eastern Cottontail	Sylvilagus floridanus
New England Cottontail*	Syvilagus transitionalis
Beaver*	Castor canadensis
Meadow Vole	Microtus pennysylvanicus
Muskrat*	Ondatra zibethicus

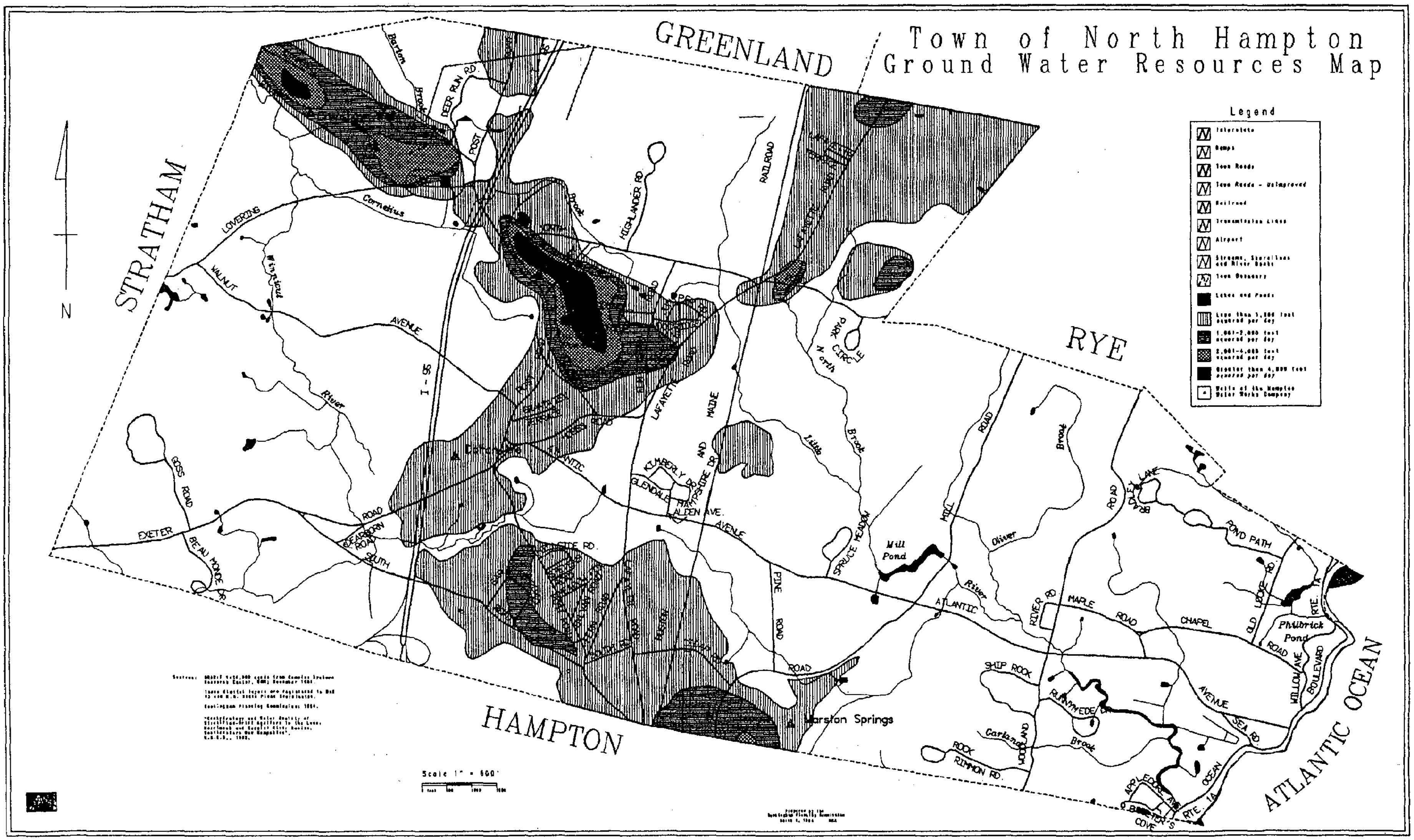
Norway Rat	Rattus norvegicus
Meadow Jumping Mouse	Zapus hudsonius
Coyote	Canis latrans
Red Fox*	Vulpes vulpes
Gray Fox*	Urocyon cinereoargenteus
Raccoon*	Procyon lotor
Long-tailed Weasel*	Mustela Frenata
Mink	Mustela vison
River Otter*	Lutra canadensis
White-tailed Deer*	Odocoileus virginianus
Chipmunk*	
Red Squirrel*	
Grey Squirrel*	
Skunk*	
Woodchuck*	

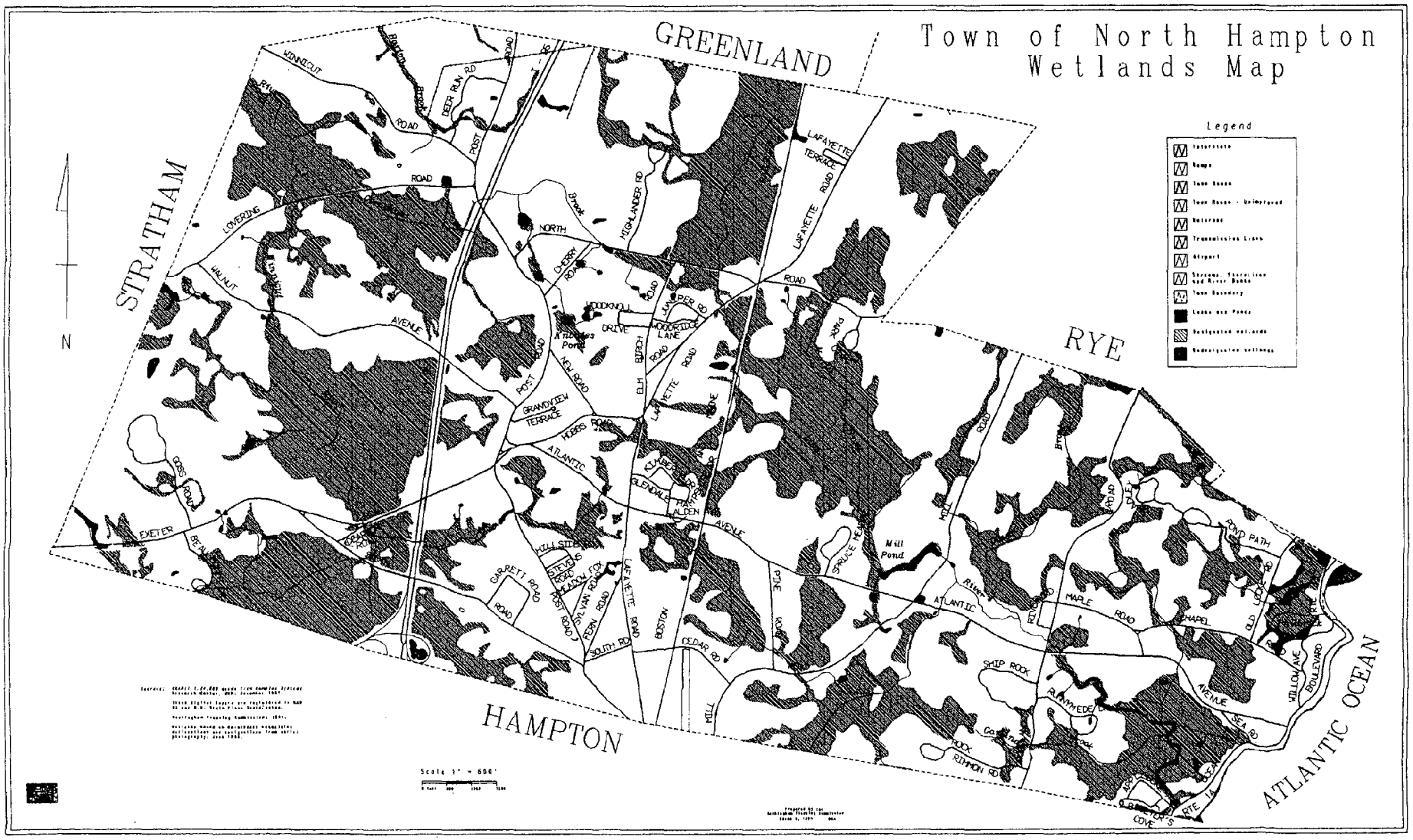
* denotes actual observation or sign of animal


Town of North Hampton
Bedrock Geology Map
GREENLAND
STRATHAM
RYE
HAMPTON
ATLANTIC OCEAN
Legend
Interstate
Ramps
Town Roads
Town Roads - Unimproved
Railroad
Transmission Lines
Airport
Streams, Shorelines and Other Water
Town Boundary
Lakes and Ponds
Bedrock Geology Boundary
Oe9
OZk
OZb
OZr
OZz
Knowles Pond
Mill Pond
Philbrick Pond
Scale 1" = 600'


Town of North Hampton
Farmland and Forest Soils Map
Legend
Airport
GREENLAND
RYE
STRATHAM
HAMPTON
ATLANTIC OCEAN
Cornelius
River
North
Brook
Little
Oliver
RAILROAD
MAINE
AND
I - 95
ROAD
SOUTH
Philbri
Pond
OCEAN
RTE 1A
COVE
N


Town of North Hampton
Surface Waters and Watersheds
GREENLAND
STRATHAM
HAMPTON
RYE
ATLANTIC OCEAN
Great Bay Watershed
Coastal Watershed
N
Legend
Scale 1" = 600'


Town of North Hampton
Ground Water Resources Map
Legend
Interstate
Ramps
Town Roads
Town Roads - Unimproved
Railroad
Transmission Lines
Airport
Streams, Shorelines and River Banks
Town Boundary
Lakes and Ponds
Less than 1,000 feet squared per day
1,001-2,000 feet squared per day
2,001-4,000 feet squared per day
Greater than 4,000 feet squared per day
Wells of the Hampton Water Works Company
GREENLAND
RYE
HAMPTON
STRATHAM
ATLANTIC OCEAN
N
Scale 1" = 600'
I - 95
RAILROAD
HIGHLANDER RD
DEER RUN RD
POST
Barton Brook
Cornelius
LOVERING
WALNUT
Winnicut River
AVENUE
GOSS ROAD
EXETER ROAD
BEAU MONDE DR
DEARBORN ROAD
SOUTH
LAFAYETTE
MAINE
AND
HAMPSHIRE DR
KIMBERLY DR
GLENDALE
ALDEN AVE.
ATLANTIC AVENUE
PARK CIRCLE
North Brook
Little Brook
SPRUCE MEADOW
Mill Pond
MILL ROAD
River
Oliver Brook
PINE ROAD
Marston Springs
SHIP ROCK
RUNNYMEDE DR
Garland Brook
WOODLAND
ROCK
RIMMON RD.
RIVER RD
MAPLE ROAD
CHAPEL ROAD
AVENUE
SEA RD.
OCEAN
RTE. 1A
APPLEDORE AVE
BATCHELDER'S COVE
BRADLEY LANE
POND PATH
OLD LOCKE RD
Philbrick Pond
WILLOW AVE
BOULEVARD
RTE. 1A
ROAD


Town of North Hampton
Wetlands Map
GREENLAND
STRATHAM
RYE
HAMPTON
ATLANTIC OCEAN
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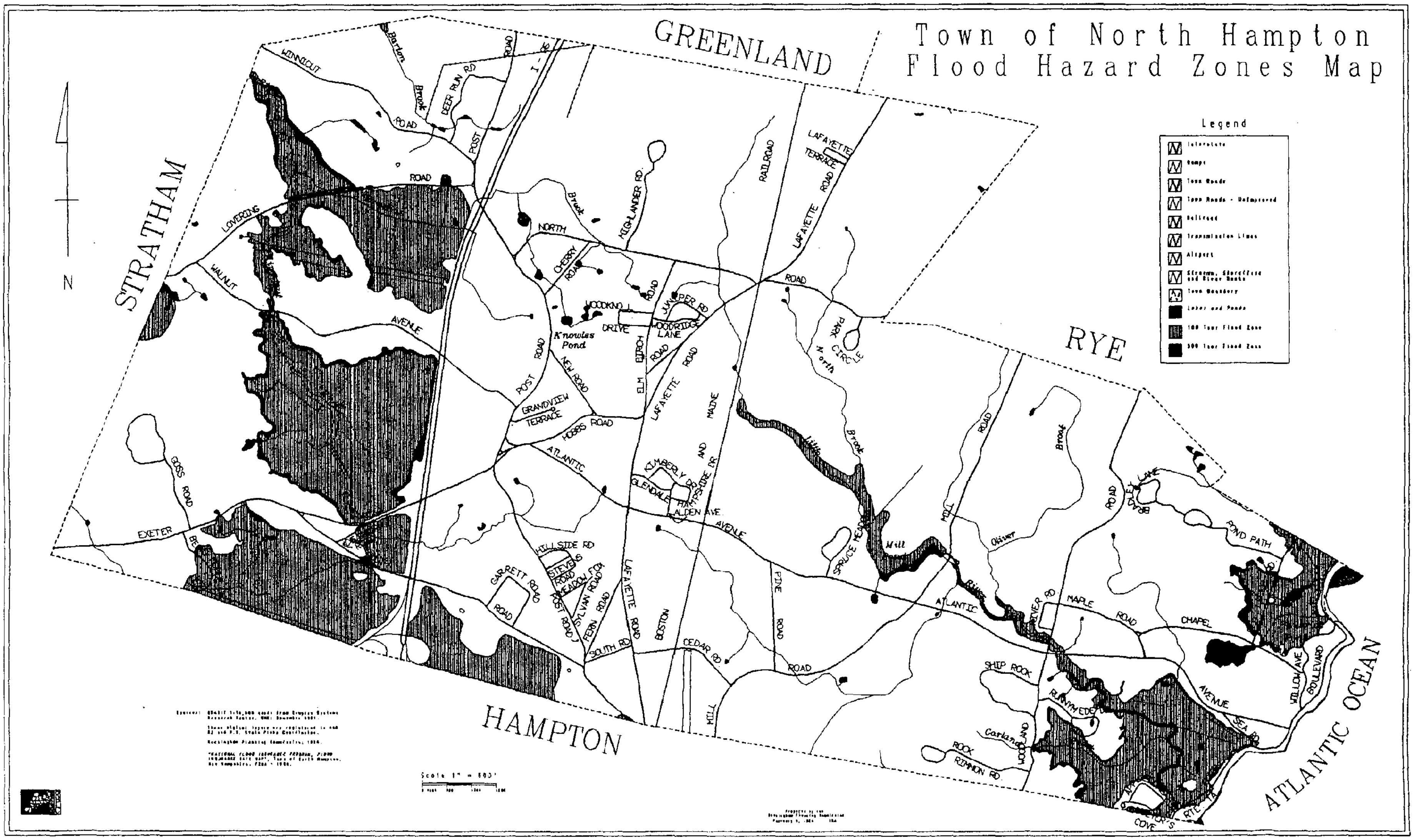
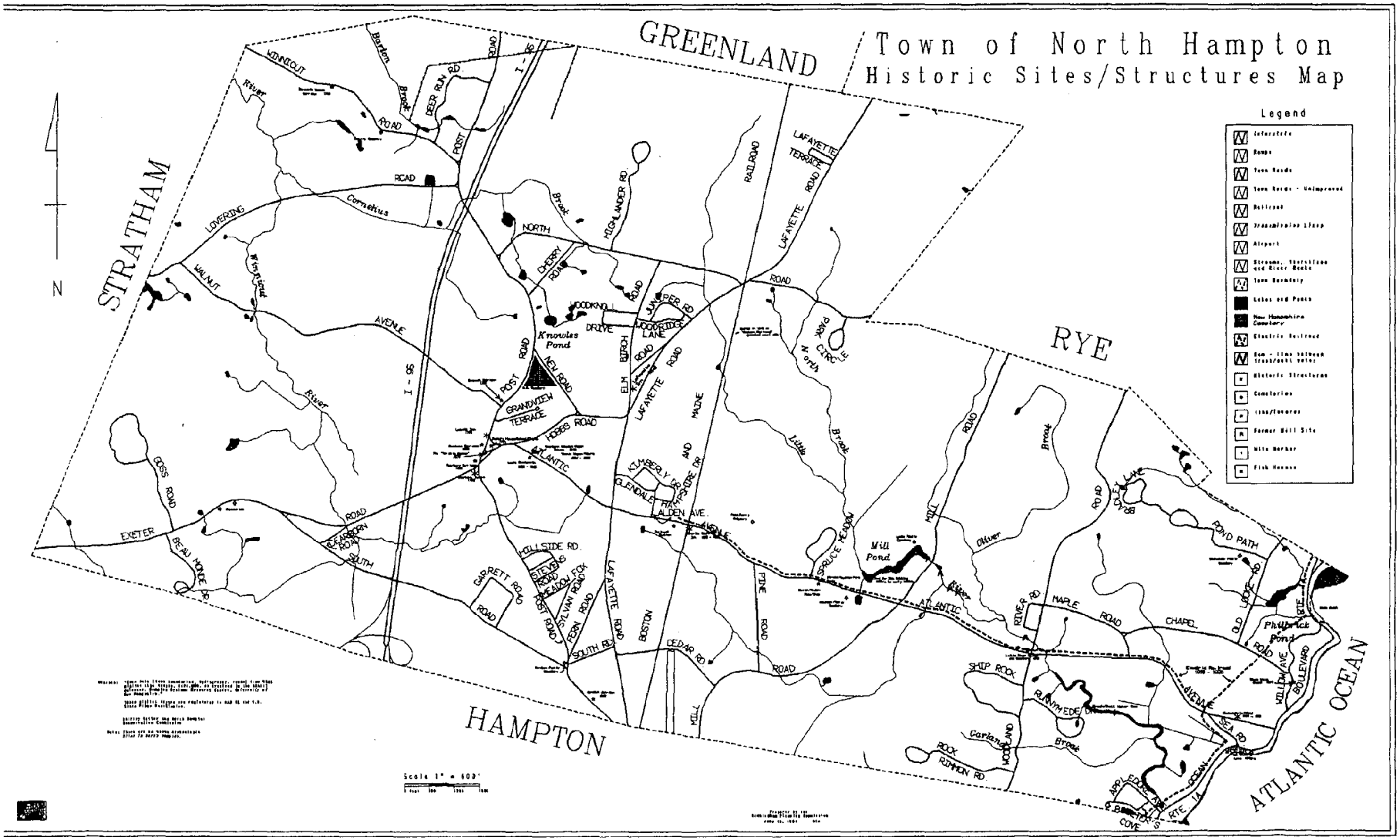
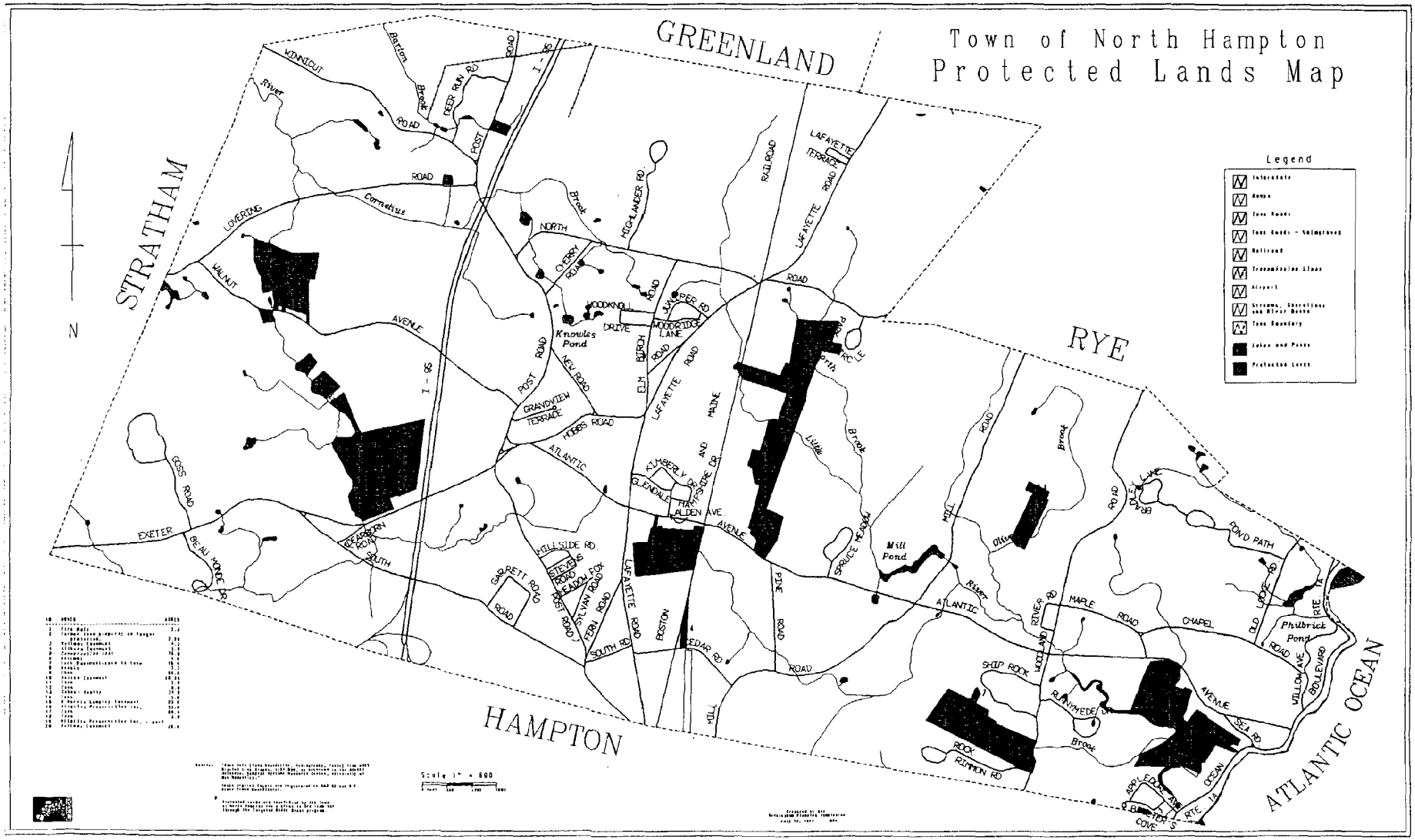
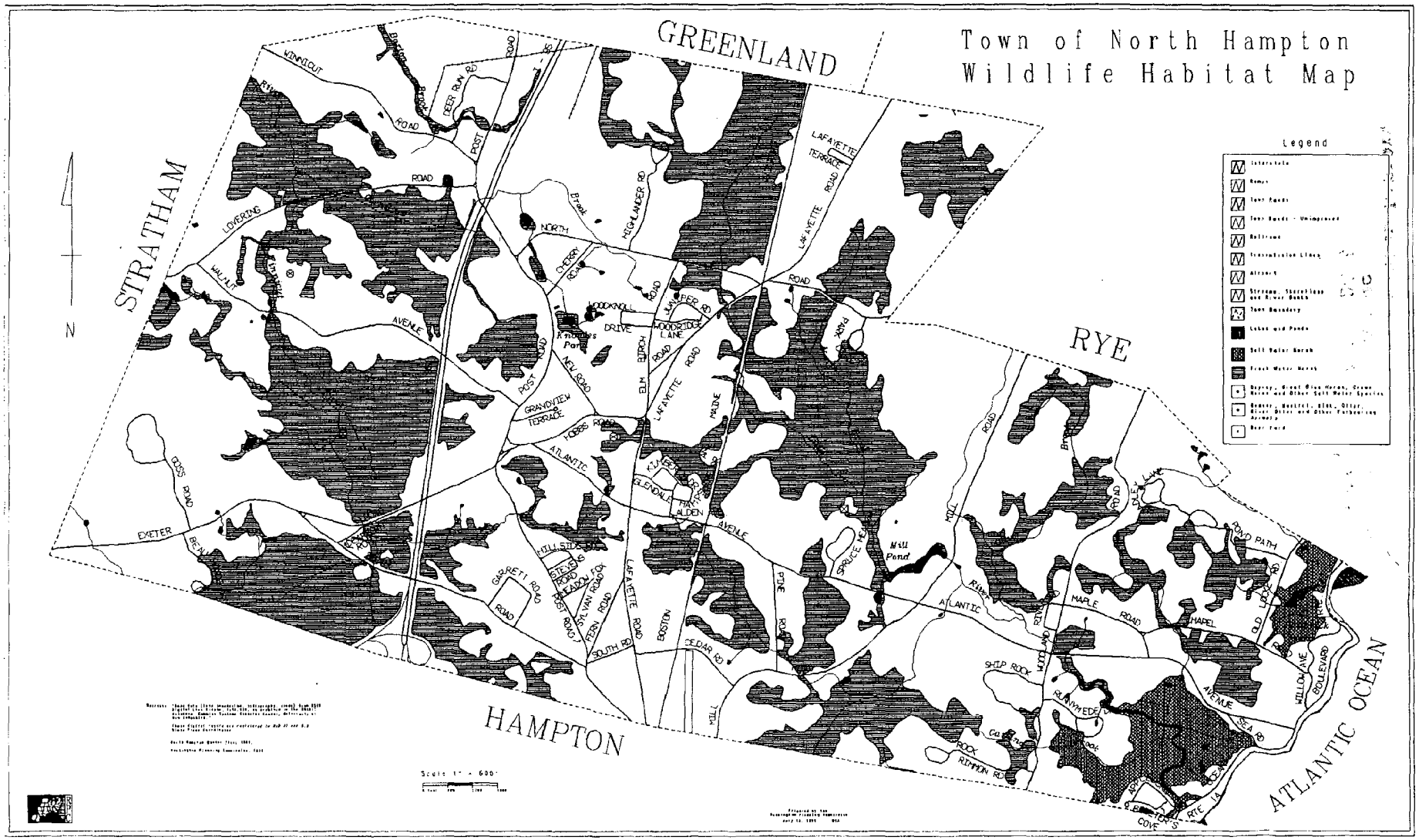
Legend
Scale 1" = 600'

Town of North Hampton Flood Hazard Zones Map




Town of North Hampton
Historic Sites/Structures Map
GREENLAND
STRATHAM
HAMPTON
RYE
ATLANTIC OCEAN
N
Legend
Scale 1" = 600'


Town of North Hampton
Protected Lands Map
GREENLAND
STRATHAM
HAMPTON
RYE
ATLANTIC OCEAN
N
Legend
Knowles Pond
Mill Pond
Philbrick Pond
Scale 1" = 600'


Town of North Hampton
Wildlife Habitat Map
GREENLAND
STRATHAM
RYE
HAMPTON
ATLANTIC OCEAN
N
Legend
Scale 1" = 600'